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Via Email and US Mail

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Re: Comments on Southern Forest Resource Assessment (Draft, November 26, 2001)

Dear David and John:

The Southern Environmental Law Center appreciates the opportunity to offer these comments on the draft Southern Forest Resource Assessment (SFRA). As you know, from the outset SELC strongly supported this comprehensive look at Southern forests because we understand that our region's forests and associated ecological resources are being subjected to significant and dramatic changes. Indeed, the scale and intensity of these alterations of our forests are in some respects reminiscent of the widespread logging boom that swept through the Southern Appalachians at the turn of the previous century, even though today's threats to our natural forests have new dimensions. Not only are logging levels high once again, forestland lost to development and conversion of natural forests to industrial pine plantations is now proceeding at an unprecedented pace. Spurred by the widespread impacts to forests that are occurring across the region, we have participated throughout in this ambitious study effort, beginning with the early scoping phase.

We begin these comments by commending each of you and your fellow researchers on your extensive compilation of diverse materials related to our region's forests. This has been an enormous undertaking which is already drawing well-deserved attention to the plight of Southern forests from the public and policy-makers alike. We also appreciate the time that each of you, David and John, have spent interacting with us during the course of the study, soliciting our input and answering our questions. Our sole aim in submitting these current comments is to further improve the SFRA so that it may better inform the ongoing policy debate over appropriate actions needed to ensure the bright future of Southern forest ecosystems.

The overarching question which guides the substantive comments below may be stated as follows: To what extent does the SFRA (both the Draft Summary Report (DSR) and the various

technical reports) provide policy makers and concerned citizens a full, fair and accessible description of key forest trends as well as their potential impacts on the ecological resources of the region in a policy-relevant format? Among the many sub-questions to this overarching inquiry is how the report could be improved to better serve this intended purpose. In general, we believe that while the key forest trends have been identified, the draft report could still be substantially improved before finalization, at least with respect to its treatment of priority trends and issues, and of particular ecoregions where forest changes are likely to be most significant. We are also especially eager to see significant improvements to the discussion of potential ecological impacts as well as some reorganization, especially of the Summary Report, to make it more accessible and useful to likely readers. In hopes of achieving this overall result, we now turn to more specific comments and suggestions.

I. To Increase The Accessibility And Policy Relevance Of The SFRA, The Summary Report Should Be Substantially Reworked To Emphasize Coherent Discussions Of The Issues Of Priority To The Public And To Policy-Makers, To Feature More Detailed Discussion Of Subregional Ecosystems Most Likely To Be Affected By Forest Changes, And Also To Provide Significantly Better "Navigational Tools" For Guiding Readers Through The Report.

We do not doubt that synthesizing the results of some 23 different chapters addressing the respective assessment questions, all prepared by different authors, is a daunting task, to say the least. And, indeed, the complexity of Southern forest issues in and of itself should not be underestimated. Nonetheless, to optimize its usefulness, the draft Summary Report must be significantly reorganized better to convey information about the most significant issues and the particular subregional ecosystems that are most likely to be affected by changes in forest resources. We believe that most citizen readers and most policy-makers will be primarily interested in particular substantive issues, i.e., the fate of forested wetlands, or particular places, i.e., the Atlantic Coastal Flatlands. Thus, it makes sense to reorganize substantial portions of the Summary Report around issues and ecoregions, instead of simply maintaining the current approach of summarizing information pulled from the technical report without any evident priorities or emphases.

A. Key issues warrant a synthesized discussion in the final summary report.

Accordingly, our first recommendation is that the final report clearly emphasize coherent discussions of the key issues, drawing together and synthesizing the relevant information in the disparate technical reports into an understandable narrative. By contrast, in the draft report key trends and issues are discussed in "fits and starts" in widely separated portions of the summary. For example, the status of migratory birds which are dependent on forested habitat is an issue of undisputed public concern. In the draft report, a reader must search Terra-1 for bird population trends, Terra-3 for the effects of urbanization and agriculture on birds, Terra-4 for the effects of timber management and Terra-5 for the habitat requirements of priority bird species. What is utterly lacking, thus far, is any meaningful synthesized discussion of how all this information should be added up to reflect a coherent status report on migratory birds, including a sense of the cumulative effects of forest changes on birds, among other factors. Also missing from the

current documents is any meaningful effort to resolve inconsistencies among the various technical papers.

We believe that the most efficient and practical way of curing some of these deficiencies would be a major reorganization of the Summary Report to ensure that issues and trends of high public interest are easily findable and ideally discussed primarily within a single section of the Summary Report. In our comments below, we will focus on some of these key trends, i.e., forest land loss, forest type conversion, etc., and will try to offer both organizational suggestions and substantive comments relevant to the recommended re-write of the Summary Report.

B. Ecoregions of priority concern should be given fuller treatment in the final summary report.

While some readers of the report will want to focus on particular issues, many other readers will want ready access to information about a particular subregional ecosystem, perhaps where they live, work or serve in a policy-making capacity. At present, the draft report provides some useful information about particular ecosystems but, like the issue-related information, it is so scattered through the documents that, for practical purposes, it is inaccessible to the average reader. Even when a reference is made to a particular ecoregion in the draft Summary Report, only limited information and discussion is offered.

We also note that there are a variety of different measures used throughout the report to prioritize the ecoregions as areas of concern. These include breakouts by ecoregion for projected land loss, for forest population density, for timber production, for increased plantation lands and so forth. It appears, however, that only one of these various measures -- loss of forestland -- has been utilized to target the so-called "Subregions of Concern" in the draft Summary Report at 4.2, to wit, the Southern Appalachians, Piedmont, Lower Atlantic and Gulf Coastal Plains, and Florida Panhandle. As discussed in the next paragraph, a broader look at all of the threats facing each subregion is needed, and we strongly suggest that given a broader analysis, the Cumberland Plateau would be included as a subregion of concern.

We recommend that the final Summary Report be expanded to include more data and discussion about the particular trends in each subregion. We have created a draft matrix (See Attachment A) of the various ecoregions identified by the multiple measures of concern, and hope this could serve as a starting point for a broader discussion in the final Summary Report. We note, for example, that the Cumberland Plateau has only the eighth highest level of project loss of "forest area" (as ranked in Timbr-1 at Table 3), but as the matrix indicates, a consideration of core interior forests, susceptibility to fragmentation and fish and mussel hotspots suggests that this subregion has significant resources at risk from the identified forest trends. Note that the matrix also includes information about the ecological resources in the various subregions which may facilitate a preliminary analysis of the potential ecological impacts of the predicted forest changes.

C. Navigational tools are needed to guide readers through the technical reports and summary report.

Finally, we strongly recommend that much more cross-referencing of the disparate but related information be done, and that an index be added to help the reader navigate the report. For example, in the section of the report discussing the projected growth in pine plantations, if a discussion of the ecological consequences of this trend cannot be integrated in the same section of the report, then the discussion of the pine conversions should end with a sentence that "cross walks" the reader to the discussion of the ecological impacts of this trend. For example, "a discussion of the ecological impacts of increased pine plantations can be found at ___." Not only would such cross-references assist the reader in putting together the full discussion of a particular issue, e.g., pine plantations, construction of such cross walks would ensure that the requisite information is, in fact, included in the report somewhere. A full index is also absolutely essential.

II. To Adequately Address The Sustainability Of Southern Forest Ecosytems, The Final Report Must Forego The Narrow Focus On Net Stability Of Forested Acres Across The Region And Give Greater Consideration To A Wider Array Of Ecologically Relevant Factors.

One of the highest priority issues which we hoped the SFRA would address is the fate of functioning, natural forest ecosystems in our region. Among the several different aspects implicit in the concept of functioning forest ecosystems are (1) their representativeness of our region's diverse forest types, including both species and age class, (2) their quality, i.e., fragmented versus unfragmented, (3) their extent or forestland area, (4) their distribution across the landscape, and (5) their functionality in terms of the intact status of key ecological functions. Consideration of all of these factors is essential to understanding the current status and the projected future condition of Southern forest ecosystems. All of these factors also go to the heart of the core question of the sustainability of functioning forest ecosystems in our region. While these factors are addressed to some extent in various portions of the report, on balance, the overwhelming focus of the draft Summary Report is on the extent of forestland area, as if this were the single defining element with respect to the sustainability of Southern forest ecosystems.

Accordingly, we at SELC were disappointed in the simple "takeaway message" that resulted from the initial release of the draft SFRA, especially as reflected in the USFS press release and Executive Summary. These communications emphasized, time and again, that the "[f]orests of the South are sustainable," USFS Press Release, 11/23/01, and that "[t]otal forest area will remain stable..." SFRA Executive Summary at 6. Not surprisingly, press accounts at the time reflected this same overemphasis on the stability of forest area despite the significant additional threats identified in the technical papers. Over time, the cumulative effect of these USFS messages has been the conclusion that Southern forests are "sustainable." While this narrow view of forest sustainability may suffice for those primarily interested in timber production, it is a wholly inadequate approach for conservation biologists, wildlife and recreation managers, and others who view forest resources more broadly.

We submit that the oversimplified message that stable acreage of forestland equals forest sustainability must be very clearly rejected in the final Summary Report. In that report, we would like to see a much more complex and fairly balanced discussion of the other important dimensions of forest ecosystem sustainability. The final takeaway message should be that sustainability of forest ecosystems is a complex, multifaceted issue, and that current data do not warrant a facile overall conclusion that Southern forests are sustainable. Indeed, available information provides ample basis for concern, even alarm.

A. Distinguishing natural forest and pine plantation acreages is necessary to provide an accurate picture of the ecological complexity of the region's future forests.

One of the most important changes needed in the final version of the report is that any discussion of "forestland acreage" should include the distinction between naturally occurring or naturally regenerated forests (hereinafter "natural forests") on the one hand, and planted monoculture forest types, on the other. For the most part, the current discussion of trends in forest cover pertains only to the aggregated acreages of all forest types, both natural forests and monoculture plantation, thus obscuring the differential trends with regard to these two classes. It is indisputable that the public recognizes the differences between these two broad types of forest cover and that distinguishing them in your discussion would be responsive to this public interest in the issue. The final report could be substantially improved by revising all discussions of forest cover, both retrospective and prospective, to display this distinction. For example, a retrospective analysis of natural forest acreage shows not the stable forest cover described in the draft Summary Report, which states "[t]here has been essentially no net change of total forestland area since the 1970's...." DSR at 10. Instead, the analysis should indicate that natural forests have declined by 22.3M acres since 1970. Similarly, projections of "little change in the total area of forests between 1995 and 2040," DSR at 87, should be restated forcefully in the final Summary Report to reflect the anticipated loss of some 15% of the existing natural forests over this timeframe. Timbr-1 at 1.

Similarly, better integrating other factors related to functioning forest ecosystems into the discussion of forestland area and forest sustainability is also necessary (see page 3 above). The current draft Summary Report has little to say, for example, about what the ecological complexity of the South's future forests will be. If many of the new "replacement" forests will supposedly be established on old agricultural lands either by natural succession or plantation establishment, will these new forests be the ecological equivalents of the mature hardwood or natural pine forests of today which are slated for harvest, plantation conversion or urbanization? If so, when? A related issue that receives little or no attention in the draft Assessment is the historical and projected shifts in forest age class. Age class distribution serves as a very useful indicator of the complexity of forest structure and sustainability. As such, we suggest a much fuller discussion of the potential ecological impacts of expected shifts in forest age class distribution be included in Terra-5 and the final Summary Report.

B. Including subregional analyses of forest trends would also enhance the meaningfulness of the discussion of forest trends.

Just as the aggregating of forestland area data for both natural forests and plantation types obscures the reader's understanding of more particularized trends for these forest types, so too does the almost exclusive reporting of forestland data at a broad regional level make less evident the significant changes in forest cover occurring in certain subregions. Accordingly, another way to improve the quality and complexity of the discussion of forest changes is to supplement the net regional data with analysis at the subregional level, whenever possible. The technical papers (for example, Socio-1, pages 9-10) certainly reflect that particular subregional areas are experiencing disproportionately high rates of forestland loss. In the final Summary Report, we suggest that instead of simply noting that "stability [in forestland area] at the regional level is the result of large offsetting subregional changes," DSR at 10, that a meaningful discussion of major subregional differences in forestland loss (or gain) be included, and that the factors mentioned above to relative functioning forest ecosystems be addressed subregionally as well. (See page 3 above for our related suggestion that the final report feature a fuller discussion of ecoregions where cumulative forest changes have been or are likely to be most significant.)

C. A better explanation of the use of multiple models by the researchers to make key forest forecasts is an especially important challenge which should be better addressed in the final summary report.

Two key models underpin much of the SFRA. They are the land use model (used to forecast the amount of future forestland and where it will come from) and the timber supply model (used to forecast harvest levels and the amount forestland in each forest type). Several aspects of these models deserve fuller explanation.

First and foremost, the final Summary Report should be much, much clearer that the results of the land use model vary dramatically depending on which "scenario" is selected (the Base scenario or the Market scenario). Unfortunately, the current draft Summary Report at 11 discusses the various results under both scenarios without making it explicit which scenario is being relied upon, or why. In fact, a careful reading of the technical reports reveals that the projection that the South will lose 12M forest acres to urbanization between 1992 and 2020 is based on the so-called Base scenario land use model. By contrast, the projection that some 10M acres in forests will be gained from the conversion of agricultural land to forests during the same time period is derived from the Market scenario. This sort of "picking and choosing" from the results of the multiple scenarios, without making the differential assumptions clear to the lay reader, is problematic and needs correction in the final report. The Market scenario assumes that as timber prices rise faster than agricultural rents, more landowners will place their agricultural lands in timber production. What is not disclosed in the draft Summary Report is what amount of agricultural lands, if any, would be projected to be converted to forestlands under the base scenario (which holds timber prices and agricultural rents constant).

The final report should explicitly discuss any legitimate reservations or questions about the models' assumptions. One of the assumptions that may be questioned is that real timber

prices will continue to rise in our region, and that they will rise faster than agricultural prices. The validity of this assumption depends on many diverse factors, ranging from future supply from other regions of the world to the price at which non-wood substitutes are brought to market. The only information provided about regional timber prices in the technical reports is limited to a single state, Louisiana. Socio-1 at Figure 7. A brief review of Timber Mart South data back to the early 90's suggests that pulpwood prices have remained flat, or declined, for a significant time period. Saw timber prices have generally risen but have been flat or declining in recent years. Given the importance of this assumption, a better discussion of timber price projections, and their relationship to agricultural prices, is warranted.

In addition, the output or conclusion that significant new acreages of forestland will be generated from agricultural lands due to changes in landowner behavior resulting from the favorable rent/price ratio is, to our knowledge, an untested econometric proposition that may or may not hold true. For example, just how closely does actual landowner behavior track the behavior that would be rationally dictated by price ratios? Certainly, examples abound of economically irrational landowner behavior, including the continued increase in acres of soybeans planted in recent years despite falling soybean prices. Will these same farmers become economically well-informed and rational (assuming timber prices will rise) and convert to timber production? If not, the South may have substantially less forestland in the future than projected by the SFRA.

Lastly, given the heavy reliance on models to generate the SFRA's key forecasts, we also suggest that it is particularly important to explain in the Summary Report the role that all the various assumptions used in models play with regard to driving certain forecasts and conclusions. While we've emphasized here the assumption that favorable timber/agriculture price ratios will result in substantial gains in forestland in the South, other "unseen" assumptions no doubt are driving other conclusions or projections. The final report must do a much better job of explicitly identifying critical assumptions which are built into the key models. At present, these assumptions are scattered through some of the technical reports but are largely omitted from the summary. We note that the explanation of the timber model set forth in the methods section of Timbr-1 at page 3, et seq. does a much better job of explaining assumptions and inputs to this model than researchers have done with respect to the land use model. Accordingly, this explanation could serve as an example of how to improve the explanation of the land use model in Socio-1. The remaining task would be to give an explanation of both in the Summary Report, with an emphasis on how model assumptions directly influence the outcomes or conclusions.

III. Given The Strong Public Interest In The Proliferation Of Pine Plantations, In The Final Report The Rate Of New Plantation Establishment, The Extent To Which New Plantations Will Displace Natural Forests, And Several Other Aspects Of The Plantation Issue Must Be More Fully Addressed.

It has been clear since the scoping phase for this report that the increase in the area of pine plantations region-wide is a high priority issue for the public. The importance of understanding all aspects of this issue is underscored by the report itself insofar as it projects more than a 60% increase in plantation acreage from 1999 to 2040 (32M acres to 54M acres).

DSR at 35-50. Several issues relative to pine plantations need better resolution and/or more elaboration.

The first issue needing better resolution or explanation is the projection of a significant decrease in the rate at which pine plantation acreage will increase in the future. During the 1990's, pine plantations acreage in the South increased by 9M acres, or an annual rate of 900,000 acres. Health-1 at 6, Table 9. By contrast, the SFRA projects pine plantation acreage to increase by 22M acres (from 32M acres to 54M acres) between 1999 and 2040. DSR at 50. This reflects an annual increase of some 536,585 acres during the forecast period. This represents a 40% reduction in the rate at which pine plantations are forecast to be established, and, as far as we can determine, the reasons for or assumptions behind this significant downturn in planted acreage is not explained in the SFRA or technical reports. Because the projected rate differs so significantly from past actual experience, this issue needs fuller treatment in the final report.

A second issue related to pine plantations which needs further attention in the final report is where the new pine plantations will be created, i.e., on agricultural lands or by conversion of natural stands? Of particular interest is the SFRA's projection that most of the new plantations will result from conversion of agricultural lands, in contrast to the actual experience of the past two decades during which 75% of new pine plantations resulted from conversion of natural forests. DSR at 48, 50. Given this dramatic shift from past experience, the bases for this projection should be explained in complete detail. We note the inconsistency between the technical reports concerning whether the increase in pine plantations will decrease the area of other forest types, including natural pine. In Timbr-1 at 19, the report indicates that "one result of the projected increasing prevalence of pine plantations is a continued decrease in the area of natural forest types." By contrast, in Terra-4 at 17, the report indicates that "there is no direct correlation between the loss of natural pine acreage and increase of plantation pine."

Because the assumptions in the various models are not adequately set forth in the documents, we can only infer that the model may assume that pine plantations will be preferentially established on agricultural lands due to the favorable timber/agricultural price ratios, to the extent that agricultural lands are available. We further surmise that to the extent that the supply of agricultural lands is not sufficient to supply all of the acreage forecast as new pine plantations, the remaining acreage would be supplied by natural forest stands. Again, however, none of this is adequately explained in the SFRA and needs much further elaboration in the final report. The final report should also clarify whether the projection that future plantations will come largely from former agricultural lands is based solely on the models, or whether other factors, i.e., current location of significant capital investments like pulp and paper mills relative to available lands, were also taken into account in the forecast. Also, to the extent that government agencies offer forest landowners both stewardship advice and financial subsidies has and continues to promote conversion of natural stands to pine, this governmental intervention may distort the landowner behavior otherwise assumed from the timber/agriculture price ratio.

We also suggest that the final report should include as much additional information on the proliferation of pine plantations as possible. Among the data that would be helpful are near-term projections (by 2020) for the increase in pine, which are provided for most of the other

forest trends. To the extent that these future plantations will be established on currently forested acres, the portion of those acreages which are in natural pine, hardwoods or other forest types should be specified to the extent possible. These sort of data have been disclosed for past time periods. See, for example, Health-1, Table 9 at p. 63. Similar tables should be developed on a prospective basis and included in the final Summary Report.

Another issue needing resolution in the final report concerns inconsistencies in the growth rates used for Southern pine plantations. Of course, the overall significance of growth rates on plantations is that if these rates are not as high as assumed, even more acreage must be put into pine plantation management in order to produce the volumes necessary to meet demand. DSR at 9. Indeed, according to Timbr-1 at 14, pine plantation acreage may increase by an additional 5M acres (to 26M acres, rather than 21M acres) if the high growth rates are not achieved. On a percentage basis, failure to achieve high growth rates could result in an 80% increase in pine plantations, rather than the 67% currently forecast.

There is a discrepancy between the 75% growth rate used in the timber supply model displayed in Timbr-1 at Table 1 versus the information provided relative to a 65% growth rate (or increased volume) as set forth in Timbr-2 at 7. The differences between these growth rates is all the more perplexing because the 75% figure used in the timber supply model is characterized as an average growth rate whereas the narrative concerning the 65% growth rate implies that this is a maximum rate. The significance of the difference between these growth rates is further underscored by the fact that not all pine plantations will be managed at the highest levels of intensity needed to achieve maximum growth rates. See Timbr-2 at Table 7 concerning management intensity projections. (On a related note, the final report should also do a much better job of explaining to the public just what sort of management practices will be necessary to meet the high growth rates in terms of use of more intensive site preparation, fertilizers and herbicides, and frequency of entry.)

IV. The Final Report Must Provide A More Balanced Discussion Of Urbanization's Effects On Forestland Relative To Agricultural Land, And Also Place Urbanization In A Proper Context Vis-À-Vis Plantation Conversion.

While SELC has devoted substantial resources to raising public awareness about the ill effects of sprawl and undertakes legal action to combat sprawl, we are nonetheless concerned that the SFRA runs the risk of conveying that urbanization is the only real threat of any significance to Southern forests. Because we know this simply is not so, we urge a more balanced discussion of the sprawl issue relative to other factors. (See discussion of sprawl's impacts on birds below at page 13.) For example, the report gives the inappropriate impression that the primary affect of urbanization in our region is to diminish forestland. In fact, the number of forested acres being urbanized actually decreased during the 1990's as compared to both the 1970's and 1980's. Health-1 at 6. By contrast, urbanization is currently occurring disproportionately on agricultural lands, not forestlands which is shown by the fact that loss of rural land (both forests and agriculture) to urbanization has been increasing even as losses of forestland have been declining. While the threats to forests from urbanization are real and

significant, it is nonetheless important to place them in appropriate context vis-à-vis loss of agricultural lands to urbanization.

Another important aspect of putting forestland loss in context would necessarily require a comparison of forest acres lost to urbanization with the total number of forested acres converted to pine plantations. For example in the 1990's, forest loss to urbanization was 4.06M acres while conversion to pine plantations was more than double at 9M acres. Health-1 at 6, Table 9. Despite these compelling figures showing that the issue of much greater magnitude is pine plantation conversion, not urbanization, it was unfortunate indeed that much of the press coverage and public discussion at the time of the SFRA's release in November of 2001 focused almost exclusively on the threat of urbanization.

V. The Final Report Must Provide A Balanced Representation Of The Impacts To Wetlands From Silvicultural Activities And The Degrees Of Threat Posed By The Intensification Of Such Practices.

The wetlands section of the report (Aqua-2) synthesizes important information about the status of wetlands in the southeast. We commend the report writers for including thorough descriptions of the range of impacts associated with agricultural and silvicultural activities in wetlands. The report, however, makes a very flawed assumption concerning predominant silvicultural practices in wetlands by presupposing that forestry activities in wetlands typically consist of clearcutting with natural regeneration. Section 5.2.3 entitled "silviculture" is the first treatment of the issue of forestry in wetlands in the report. It states, "[s]ilvicultural activities in forested riverine wetlands typically consist of clearcutting overstory vegetation and allowing natural regeneration from sprouts." The treatment of the topic in this section misleads the reader by failing to provide any mention of other, notably more controversial, forestry practices such as ditching, draining, bedding, and conversion of natural forest types to pine plantations. (See Aqua-3, Section 4.7 "Woody Wetlands" for a correct description of typical silvicultural practices in the South.) In fact, all discussion of pine plantations is relegated to the near end of the chapter under the heading "Mineral Soil Pine Flats." Because of the way in which wetlands information is organized and presented in the report, it fails to provide a balanced portrayal of the current status and future of forested wetlands in the South.

Forest Service data presented elsewhere in the report clearly indicate there is little basis for the proposition that the more benign practice of clearcutting with natural stand regeneration dominates forestry activities in wetlands. The report indicates that substantial numbers of acres of natural wetland forests are being converted to pine plantations. In the southeastern states of North Carolina (99,000 acres converted), South Carolina (117,000), Georgia (129,000) and Florida (136,000) alone, close to half a million acres of lowland hardwood forests were converted to planted pine (481,000 acres in the Southeast, 634,000 in the South). Timbr-1 at Table 9. Other forested wetland types, including mineral soil pine flats (even more threatened with conversion according to the report) are not individually reported in the Assessment data for comparison. Nevertheless, these numbers reveal the inappropriateness of discussing silviculture in wetlands without mentioning the implications of pine plantation conversion at the site, landscape, and regional levels. Because of this mistaken assumption, the section fails overall to

present a meaningful discussion of the leading concerns about the future of forested wetlands in the South.

The objective of Aqua-2 was to answer the question: What are the history, status, and likely future of forested wetlands in the South? A fair and accurate response to this question must include an evenhanded discussion of silvicultural practices in wetlands without labeling conversion to planted pine a practice particular to mineral pine flatwoods alone. Site preparation and conversion activities must be described in full alongside a discussion of the impacts from such activities as reported in the literature. In addition, Aqua-2 must discuss the key prediction in the report that pine plantation silviculture is going to continue to expand throughout the region and intensify. Aqua-2 must take into account the relevant findings of the other sections in the report to be able to discuss the threats facing wetlands in the region will be facing. The report does well to quote the relevant statistics from the most recent U.S. Fish and Wildlife Status and Trends report. However, the following statement from Status and Trends should also be included: "[c]onversion from bottomland forest to managed pine plantations account for most of the changes in the freshwater forested category in the Southeastern United States." U.S. Department of the Interior, Fish and Wildlife Service, Status and Trends of Wetlands in the Conterminous United States, 1986-1997 (2000).

In addition, any response to the Aqua-2 assessment question cannot be considered complete without a discussion of related regulatory issues. Currently there is brief mention of Section 404 of the federal Clean Water Act and the silvicultural exemption to its requirements. However, the discussion fails to present a clear picture of the relevance of the exemption to the long term status of forested wetlands in the region. Status and Trends and NRI estimates of wetland losses due to silviculture are provided in the report, as are the limitations of the silvicultural exemption. However, nowhere is there any mention of the relationship between the two and the implications for the future of forested wetlands. The Status and Trends report states that 102,000 acres of wetlands were "lost" (i.e. converted from wetlands to uplands) due to silviculture between 1987 and 1998. Yet, the exceptionally brief discussion of the silvicultural exemption in Aqua-2 states that forestry activities "may not change a wetland to an upland." Clearly, there is a need to address this obvious discrepancy between the law and the reality of wetlands conversion taking place on the ground.

Furthermore, since forestry practices take place outside the regulatory permitting process, no mitigation is required to compensate for silvicultural wetland losses. By implication, the potential consequences for wetlands in the South is substantial, particularly considering the intensification of forestry practices predicted for the future. It is an uncontroverted fact that the "minor drainage" limitation on silvicultural ditching of wetlands under the exemption remains undefined and illusive. As a result, enforcement efforts to prevent this type of illegal, unmitigated conversion will continue to be thwarted. These particular issues surrounding the 404 silvicultural exemption continue to be hotly debated. Because these issues are at the forefront, it is incumbent upon the report writers to include at least some reference to them and the potential consequences for the current status and future of forested wetlands in the region.

VI. Given The Dramatic Proportions Of The Changes Predicted In Forest Trends And Land Use Within This Biologically Diverse Region, The Discussion Of Potential Ecological Consequences Should Be Made More Specific By Requiring That The Technical Report Authors Refine Their Ecological Analyses With The Benefit Of Considering The Trend Data For The First Time.

From the outset, many in the conservation community, including SELC, have been vitally interested in ensuring that the SFRA does an excellent job of analyzing the potential ecological consequences of the various forest trends and other land use changes which are underway in the South. The documentation of these trends leaves little doubt that the changes underway in our region are of dramatic proportions. Just to mention a few, we note the projection that the South could lose 12M acres of forestland by 2020 and an additional 19M acres by 2040, with much of the loss to be concentrated in certain subregions, particularly those in the eastern half of the region. During this same timeframe, virtually all the increased timber production for the U.S. will occur in our region with softwood harvests to increase by 56% and hardwoods by 47%. Softwood drain currently exceeds growth in the South and hardwood drain is projected to exceed growth by 2025 and will remain unsustainable. The area of pine plantation in the South is projected to increase by 67% to 54M acres by 2040. That these changes, individually and cumulatively, have the potential to cause significant consequences to the ecological health of one of the most biologically diverse regions of our country cannot be disputed.

Accordingly, we were disappointed to learn from you at the time of the SFRA release in Atlanta late last November that for a variety of reasons it had not been possible to provide the authors' of the various technical reports the forest trend data and land use results from the models in advance of their report preparation. We expect that this may explain the rather general nature of much of the discussion of potential ecological consequences in the draft Summary Report and technical papers alike. In general, that discussion appears to be largely informed by broad ecological principles rather than region-specific trend data. Typical statements include, "silvicultural treatments can have important implications for wildlife," DSR at 69, or "landscape configuration and fragmentation at fine scales may be critical for some species..." DSR at 70. To improve the final report, we understood from our conversations with you that the trend data was going to be circulated to the technical report writers for use in possible revision of their reports. We hope and trust that this has occurred, and that use of the actual data on forest and land use changes will enable the technical report writers to be much more specific about the actual ecological threats. In addition to encouraging the report writers to refine their papers using specific trend data, we would also encourage that more of the reports provide analyses that are subregional in nature and relate to the different ecological regions more closely. We also encourage much better tie-in of the discussion of the ecological consequences to the threatened forest types and communities which are identified in the draft report. The discussion of those special resources needs to be greatly expanded. We also use the next section of these comments to focus on birds and bird communities as a primary indicator of the ecological effects of forest trends.

VII. To More Fully Examine And Disclose The Ecological Implications Of Predicted Forest Trends, We Recommend That The Final Report Use Birds And Bird Communities As A Primary Indicator Of The Ecological Effects Of Forest Trends.

As noted previously, the draft Summary Report and technical papers fail to examine adequately the ecological implications of forest change and forest trends in the South. The final report should focus on assessing the ecological effects of forest change in the region and, importantly, the expected ecological effects of predicted trends. It is also important that information be presented in an integrated and understandable way. We recommend that the final report include a detailed assessment of birds and bird communities as well as additional indicators of ecological effects and change. (For example, see relevant analysis in N.C. Chip Study, 2000, Hess, et al., Working Paper #6.) Compared to other taxa, a great deal of information exists on the status, distribution, population trends, habitat requirements and other aspects of bird biology and ecology. In addition, birds are a visible component of forest ecosystems in the South to which the public can relate and understand the implications of forest change and trends. The draft Assessment already includes a significant focus on birds; unfortunately, as discussed above (see page 2 of these comments), the draft Summary Report fails to synthesize the information from the technical papers in a manner clearly accessible and understandable to the lay reader. Further complicating the issues, the technical papers divide the discussion of birds and expected impacts on similar wildlife species into at least three separate papers. Below we discuss some of our concerns with the individual papers, and we again strongly urge a comprehensive synthesis of the key issues, i.e., the fate of birds of conservation concern, into a unified section within the final Summary Report.

Terra-3 includes a detailed discussion of the effects of urbanization on wildlife, including forest birds. The discussion asserts that urbanization fragments forests, creates edge, may increase predation and parasitism, and may reduce reproductive success of forest bird species. The qualified conclusion is that "urban woodlands are unsuitable habitat for many forest bird species, including many neotropical migrant birds, birds that require large habitat areas for breeding, birds that breed only in forest interior habitats, many scrub shrub and grassland dependent species, and those sensitive to urban disturbance." Terra-3 at 18. This paper further cites several studies to support the proposition that "urbanization decreased species diversity of the avian community and increased avian density (or bird biomass), favoring dominance by a few species." Terra-3 at 14. To the contrary, we note research by the U.S. Geological Survey's breeding bird data below that indicates increasing bird populations in the urbanizing Piedmont.

During the past three decades, the most rapidly urbanizing region in the South was southern Piedmont. Breeding bird survey data for this region reveals that from 1966-2000, 73% of all "woodland breeding" bird species in the southern Piedmont had positive population trends. www.mbr-pwrc.usgs.gov/cgi-bin/guild00.pl Thirty-five percent of "woodland breeding" birds in this region had "significant positive" population trends while only 8% had "significant negative" trends. Looking at birds of conservation concern, four species had "significant positive" population trends while three species had "significant negative" population trends. In this region of such rapid urbanization, with all the associated negative impacts discussed in Terra-3, it is interesting that only 8% of "urban breeding" birds had "significant positive" population trends

while 50% had "significant negative" population trends during this period of urbanization in the southern Piedmont. The generally positive population trends for forest bird species during a period of significant urbanization in the southern Piedmont require significant further explanation.

Terra-4 includes a discussion of the effects of forest management on wildlife, with a particular focus on migratory birds. Section 5.2.2.4 discusses the effects of pine plantations on wildlife, again with a particular focus on birds. This section includes several conclusions with which we agree:

- "Pine plantations are generally poor wildlife habitat." Terra-4 at 20.
- "[T]here is general recognition that intensively managed pine plantations are not high-quality habitats when compared with natural pine and hardwood forests." Id. at 17.
- "Priority bird species associated with older pine stands are probably harmed the most by expansion of pine plantations." Id. at 19.

However, we are concerned by apparent contradictions between the draft Summary Report and the relevant technical papers. The draft Summary Report conclusion that "forestry practices may provide important benefits for forest breeding bird species through provision of early successional habitats" (at 70) is questioned by statements in Terra-4: "[C]laims that the present and projected increase in intensively managed pine plantations should bode well for early successional species is highly suspect" (at 17). As discussed below, bird monitoring data support the Terra-4 conclusion that early successional bird species may not be benefited by forestry practices, likely because of the intensity of management practices (increased herbicide use, bedding, short rotations, etc.).

The "coastal flatwoods" region of the South has experienced an increase of millions of acres of pine plantations and only very moderate urbanization during the past three decades. Despite expectations that woodland birds would benefit from this increased "forest cover," breeding bird survey data reveal that only half of all "woodland breeding" bird species in the coastal flatwoods region had positive population trends from 1966-2000 while half had negative trends. www.mbr-pwrc.usgs.gov/cgi-bin/guild00.pl Further, 23% of all neotropical migrants had "significant negative" population trends while only 13% had "significant positive" trends. Four species of conservation concern had significant negative population trends while 3 species had 'significant positive" trends. Perhaps most interesting is the fate of early successional species in this region over the past 35 years. While one might expect the dramatic increase in short rotation pine plantations over the past 30 years to benefit early successional species, 75% of "successional or scrub breeding" birds had negative population trends in the coastal flatwoods region from 1966-2000. Thirty-eight percent of these species had "significant negative" population trends, including 3 species of conservation concern, and only 8% and no species of conservation concern experienced "significant positive" trends. These long-term bird population trends in a region affected substantially by establishment of pine plantations seem to support the conclusion that we must question claims that early successional species are helped by increases in intensively managed pine plantations. Terra-4 at 17.

We are deeply concerned by the authors' reliance on timber industry sponsored studies which in recent years have attempted to assess the effects of pine plantations on birds. Several of these studies are cited in Terra-4. In general, these studies tend to focus on landscape scale forest management that include both pine plantations and substantial retention of natural forest along stream corridors or other areas excluded from plantation management. See, e.g., Lancia et.al., *Avian diversity and productivity on an intensively managed, industrial forest in South Carolina, the Westvaco example* (2000). These landscape scale studies reach the unsurprising conclusion that some forest bird species that require natural hardwood or older natural pine forests may remain if adequate natural forests are retained. These studies do not support a conclusion that many of these species will "adapt" to typically managed plantations in the absence of adequate retention of natural forests.

Studies that have compared the bird communities of pine plantations and the natural forests the plantations replaced have concluded that the bird communities differ significantly and plantation conversion has a disproportionately adverse effect on bird species of conservation concern. Thus, we were surprised to read the report's statement that forested wetland bird species "are making the transition to using bedded pine plantation." Terra-4 at 18. Without a much more detailed explanation and in-depth analysis, such conclusions should not be reached in the study. At a minimum, relevant studies with opposite conclusions should be discussed. For example, one of the studies cited to support this contention was conducted on the Weyerhaeuser Parker tract in North Carolina. (Mitchell and others 1999). However, a 1992 comparative point count study on this same Parker tract by Dr. Greg Butcher, Director of Bird Population Studies, Cornell Laboratory of Ornithology and Dr. Harry LeGrand, Vertebrate Ecologist, North Carolina Natural Heritage Program reached the following conclusions:

> The clearing of hardwood forests to create pine plantations is a net loss for very high or extremely high priority migratory birds. The clearcutting of hardwoods produces a dramatic change in birds. As the pines grow, the pine forests become more similar to the hardwood forests, but not by much. [Statistical] indices verify that the change from hardwoods to pines is dramatic.

The Summary Report and relevant technical papers leave many questions unresolved regarding plantation management and wildlife, especially bird species. Terra-4 should more thoroughly examine contentions that bird species dependent on natural forests are "making the transition" to pine plantations. Are these species exclusively using plantations or incidentally using plantations due to retention of nearby natural forests? Do these species utilize plantations only when hardwood understory is fostered or long rotations employed? If so, to what extent are these atypical management techniques employed? At what point and for how long in the rotation cycle do favorable conditions exist that result in use of plantations by birds of conservation concern? If some wetland forest birds use plantations at some stage or under certain management regimes, what net population change in these species occurs when a plantation replaces a forested wetland? What is the relative conservation priority of bird species that may use plantations under certain management regimes compared to species that rely on natural forests? How does the clearly documented trend toward more intensive plantation management

(shorter rotation, intensive site preparation and more herbicide use) affect the overall impact of plantation forestry on birds? The technical papers fail to address any of these critical questions.

Terra-5 addresses the issue of maintaining species in the South with a significant emphasis on birds. Heavy reliance is appropriately placed on the Partners in Flight land bird conservation plans for physiographic regions. Pashley *et al.* (2000). Conservation plans for the South Atlantic Coastal Plain, East Gulf Coastal Plain, West Gulf Coastal Plain, and Southern Ridge and Valley (Southern Cumberland Plateau) **all** identify conversion of natural forests to pine plantation as a primary conservation concern. The draft SFRA confirms that these concerns are real and immediate in that the vast majority of the expected expansion of pine plantations will occur in these regions. As discussed above in section III, page 8, 75% of new pine plantations during the past decade occurred at the expense of natural forests, not planting of agricultural land. Even if a greater proportion of future plantations resulted from planting agricultural lands, this forecloses natural forest regeneration on these lands that could benefit declining bird species. It is critical that the SFRA clearly frame the issues related to intensive plantation silviculture on bird conservation in the South and the long-term implications of predicted trends of vastly increased plantation acreage and more intensive management of plantations.

One final important area of bird conservation neglected by the draft SFRA is an assessment of how the specific habitat needs of high conservation priority species will be addressed, or not addressed, in light of the predicted forest trends. Several PIF regional conservation plans include specific habitat targets. For example, the plan for the South Atlantic Coastal Plain targets (1) maintenance of eight populations of swallow-tailed kite on tracts of 100,000 acres of mature forested wetland imbedded in a 400,000 acre forested landscape; (2) maintenance of 30 populations of Swainson's warbler on 6-10,000 acre tracts of mature forested wetlands; (3) maintenance of one population of cerulean warbler on 100,000 acres of floodplain forests, and maintenance of 10 populations of Wayne's black-throated green warbler on 20,000 acre tracts of mature forested wetlands with large white cedar components. The final SFRA should take the predicted forest trends and assess the likelihood of achieving these specific bird conservation objectives in each of the physiographic regions.

VIII. The Discussion Of The Increasing Scarcity Of Forest-Based Recreation Should Be Improved By Additional Consideration Of The Potential To Add To Our Public Lands Through Acquisitions From Willing Sellers.

We strongly applaud the discussion of forest-based recreation in the SFRA and believe that this is a portion of the report that is already serving an excellent function in drawing public attention to the growing scarcity of this resource and the likely conflicts over human uses of our forests. As the report aptly points out, forest-based recreation is largely concentrated on public lands which are in particularly short supply in the South. With less than 5% of our nation's federal lands located in this region which is home to a third of the nation's population, the report points out that increased demand for outdoor recreation will be placed on public lands in the future. It appears almost certain that the term "recreation congestion," as used in the report, is likely to become as familiar to Southerners as the term "traffic congestion."

Our primary suggestion for improving the discussion of outdoor recreation would be to add some information about the potential for acquisition of additional public lands from willing sellers. At a bare minimum, we want to correct the report by removing the unfounded conclusion that "there appears to be limited capacity to expand forest-based recreation opportunities in the South." DSR at 40. Quite the contrary, the amount of timber industry land up for sale at present is, for example, quite significant. Accordingly, it would be most appropriate to give some brief explanation of how federal dollars are made available from the Land and Water Conservation Fund and other appropriations to acquire additional lands for the public domain. It would also be most helpful to have a calculation of the additional acres of public land that would be necessary to meet the demand for forest-based recreation through 2020, and through 2040. Breaking out the supply of additional lands needed on a subregional basis would be even better, if possible.

IX. The Discussion In The Draft Summary Report Of The Regulation Of Forests In The South Is Limited To The Mention Of Voluntary BMPs And Should Be Expanded To Address The Broader Set Of Regulatory Issues.

Given the concentration of the timber industry in our region and the projections of very impressive increases in the harvest levels in the decades to come, whether forestry is sufficiently regulated to prohibit adverse environmental impacts from occurring is a question of obvious public concern. The discussion of the regulation of forestry in the draft Summary Report appears to be confined to conveying the simple fact that regulation of forestry in the South is limited and that the states generally rely on voluntary BMPs. DSR at 18. We do not believe that this limited and simplistic treatment of the regulation of forestry is sufficient to respond to the level of public interest in this question. To give an indication of the range of issues we had hoped would be covered, we will quote directly from our scoping comments submitted to the Forest Service on September 15, 1999:

> It will be essential for the study both to describe and <u>to evaluate</u> existing statutory and regulatory forest requirements with regard to forest practices in the various states. These laws need to be evaluated as written and as actually applied in the field in terms of their efficacy in protecting the environment from adverse consequences of timber harvesting and related management practices. Do states have mandatory buffers between harvest areas and surface waters, wetlands and other important aquatic resources? Do states prohibit the draining of wetlands for forestry activities? Are there any limits on the size of openings created by harvesting in various ecosystem types? Is there any requirement of advance notice of harvest activities to the state agency in order to allow for monitoring and, when necessary, enforcement? The study should clearly inform its future readers of the answers to such basic questions as these.

Equally important is the assessment of the actual implementation of any such requirements which will necessarily entail an assessment of enforcement activities by state agencies, adequacy of funding for enforcement, rates of violations, and frequency of administrative or in-court pursuit of penalties or injunctive relief for those who violate requirements. Finally, putting all of this information about the regulation of forestry in our region in some context by comparing it to state forest practices acts in other parts of the country would be extremely useful.

We stand by our comments of 1999 and, again, suggest that the discussion of the lack of effective regulatory controls over forestry in our region be addressed in greater detail in the final report.

In conclusion, we appreciate the opportunity to offer these comments and look forward to staying involved with any efforts to improve the final SFRA. Please let us know if you have questions about any of the foregoing comments as we would be happy to answer them.

Sincerely,

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Enclosure

Appendix A

Description of Matrix		Ecoregions														
Each of the listed ecoregions (to right) were mentioned as having been or projected to be impacted by the forest trends listed below. A ranking of "High" or "Med" is given based discussion of each forest trend in the Assessment, with 2 points awarded for each "High" and 1 point for each "Med" ranking.		Blue Ridge Mountains	Northern Ridge and Valley	Coastal Plains and Flatwoods, Lower	Central Ridge and Valley	Atlantic Coastal Flatwoods	Southern Appalachian Piedmont	Southern Cumberland Plateau	Florida Coastal Lowlands, Eastern	Northern Cumberland Plateau	Interior Low Plateau	Florida Coastal Lowlands, Western	Southern Unglaciated Allegheny Plateau	Southern Ridge and Valley	Mississippi Alluvial Valley	Ouachita / Ozark Mountains
Historical and Projected Forest Trends	NRI data - Forest land loss, 1982-1992 (Table 2, Socio-1)	High	Med	Med	High	High	High	High	High		High	High	Med	High		
	Projected Forest land Loss (Socio-1 @ 11)	High	High		High		High	High						High		
	Forest Population Density - measure of high population (DSR @ 32)	High	High	High	High	High	High		High		High					
	Timber production (DSR @ 35)		Med	High		High	Med		High		Med					
	Increase in Planation land (Timbr-1 @ 15)			High		High	High									
	Core Interior Forests (Socio-1 @ 13)	High		Med			Med	High		High			High			Med
	Susceptible to Fragmentation (DSR @ 53)	High	High		High			High		High			High			
	Air Quality Concerns including Acid Rain (DSR @ 20)	High	High		High											
	Historical Wetland Loss (DSR @ 79)			High		High									High	
Resources at Risk	Recreation Hotspots (Socio-6 @ 17)		High	High		High	High		High							
	Amphibian Hotspots (DSR @ 81)	High	High	Med	High	Med						High				
	Fish and Mussel Hotspots (DSR @ 82)							High		High	High					
	Rare Plant Assemblages (DSR @ 72)	High	High	High	High			Med		Med		High				Med
Total Score ("High"=2 pts;"Med"=1)		23	23	21	20	18	16	15	11	10	9	8	7	5	3	2